

What is claimed is:

1 1. A multi-lamp backlight system comprising:
2 a core;
3 a first coil set wrapped around the core, to which a
4 first AC voltage is applied;
5 a second and third coil sets wrapped around the core
6 and respectively disposed on two sides of the
7 first coil set, on which a second and third AC
8 voltage are induced by the first voltage signal
9 applied to the first coil set respectively,
10 wherein the numbers of coils of the second and
11 third coil sets are substantially the same; and
12 a first and second lamp supplied with power by the
13 second and third AC voltage respectively.

1 2. The system as claimed in claim 1, wherein the
2 first and second lamp are discharge lamps.

1 3. The system as claimed in claim 2, wherein the
2 discharge lamps are CCFL (Cold Cathode Fluorescent Lamp).

1 4 The system as claimed in claim 1, wherein each of
2 the second and third coil sets has two ends of,
3 respectively, first and second polarities, and the first and
4 second lamp are coupled to the ends of the first polarity of
5 the second and third coil sets respectively.

1 5. The system as claimed in claim 1 further
2 comprising:

3 a first and second capacitor coupled between the first
4 lamp and the second coil set, and the second lamp
5 and the third coil set respectively.

1 6. The system as claimed in claim 1 further
2 comprising a first driving circuit providing the first AC
3 voltage.

1 7. The system as claimed in claim 6 further
2 comprising a plurality of fourth coil sets and a plurality
3 of third lamps, wherein the numbers of coils of the fourth
4 coil sets are substantially the same, the fourth coil sets
5 are symmetrically disposed on the two sides of the first
6 coil set, the first AC voltage applied to the first coil set
7 induces a fourth AC voltage on each of the fourth coil sets
8 and the third lamps are supplied with power by the fourth
9 AC voltages.

1 8. The system as claimed in claim 6 further
2 comprising:

3 a second driving circuit; and
4 a fifth coil set wrapped around the core, and having a
5 first end coupled to a first end of the first
6 coil set and a second end coupled to the second
7 driving circuit.

1 9. The system as claimed in claim 8, wherein the
2 second driving circuit comprises:

3 a first transistor having a drain coupled to a second
4 end of the first coil set and a gate coupled to
5 receive a fifth AC voltage;

6 a second transistor having a drain coupled to the
7 second end of the fifth coil set, a gate coupled
8 receive a sixth AC voltage and a bulk coupled to
9 ground;
10 a first and second diode respectively coupled between
11 the source and drain of the first transistor, and
12 the source and drain of the second transistor;
13 and
14 a capacitor coupled between a bulk of the first
15 transistor and the first end of the first coil
16 set.

1 10. The system as claimed in claim 8, wherein the
2 first and fifth coil set are disposed between the second and
3 third coil sets.

4 11. The system as claimed in claim 8 further
5 comprising a plurality of sixth coil sets and a plurality of
6 fourth lamps, wherein the numbers of coils of the sixth coil
7 sets are substantially the same, the sixth coil sets are
8 symmetrically disposed on the two sides of the first and
9 fifth coil set so that the first and fifth coil set are
10 disposed between the sixth coil sets, the first AC voltage
11 applied to the first coil set induces a seventh AC voltage
12 on each of the sixth coil sets and the fourth lamps are
13 supplied with power by the seventh AC voltages.

1 12. The system as claimed in claim 6 further
2 comprising:

3 a third driving circuit;

4 a seventh coil set wrapped around the core, and having
5 a first end coupled to a first end of the first
6 coil set and a second end coupled to the third
7 driving circuit; and
8 an eighth coil set wrapped around the core, and having
9 a first and second end coupled to the third
10 driving circuit.

1 13. The system as claimed in claim 12, wherein the
2 third driving circuit comprises:
3 an inductor having a first end coupled to receive the
4 first AC voltage and a second end coupled to the
5 first end of the first coil set;
6 a first transistor having a drain coupled to a second
7 end of the first coil set, a source coupled to
8 ground and a gate coupled to a first end of the
9 eighth coil set;
10 a second transistor having a drain coupled to a second
11 end of the seventh coil set, a source coupled to
12 ground and a gate coupled to a second end of the
13 eighth coil set; and
14 a first and second resistor respectively coupled
15 between the gate of the first transistor and the
16 first end of the first coil set, and the gate of
17 the second transistor and the first end of the
18 first coil set.

1 14. The system as claimed in claim 12, wherein the
2 first, seventh and eighth coil sets are disposed between the
3 second and third coil sets.

1 15. The system as claimed in claim 12 further
2 comprising a plurality of ninth coil sets and a plurality of
3 fifth lamps, wherein the numbers of coils of the ninth coil
4 sets are substantially the same, the ninth coil sets are
5 symmetrically disposed on the two sides of the first,
6 seventh and eighth coil sets so that the first, seventh and
7 eighth coil sets are disposed between the ninth coil sets,
8 the first AC voltage applied to the first coil set induces
9 an eighth AC voltage on each of the ninth coil sets and the
10 fifth lamps are supplied with power by the eighth AC
11 voltages.

1 16. The system as claimed in claim 6 further
2 comprising a feedback network coupled between the first and
3 second lamp, and the first driving circuit.

1 17. A multi-lamp backlight system comprising:
2 a core;
3 a first coil set wrapped around the core, to which a
4 first AC voltage is applied;
5 a plurality of second coil sets wrapped around the core
6 and symmetrically disposed on two sides of the
7 first coil set, on each of which a second AC
8 voltage is induced by the first voltage signal
9 applied to the first coil set, wherein the
10 numbers of coils of the second coil sets are
11 substantially the same; and
12 a plurality of lamps supplied with power by the second
13 AC voltages.

1 18. The system as claimed in claim 17, wherein the
2 lamps are discharge lamps.

1 19. The system as claimed in claim 18, wherein the
2 discharge lamps are CCFL.

1 20. The system as claimed in claim 17, wherein each of
2 the second coil sets has two ends of, respectively, first
3 and second polarities, and the lamps are coupled to the ends
4 of the first polarity of the second coil sets.

1 21. The system as claimed in claim 17 further
2 comprising a driving circuit providing the first AC voltage.

1 22. The system as claimed in claim 21 further
2 comprising a feedback network coupled between the lamps and
3 the driving circuit.

1 23. A transformer for multi-lamp backlight system
2 comprising:

3 a core;

4 a first coil set wrapped around the core; and

5 a second and third coil sets wrapped around the core
6 and respectively disposed on two sides of the
7 first coil set, wherein the numbers of coils of
8 the second and third coil sets are substantially
9 the same.